**Chapter 1**

**Introduction**

**1.1 Overview of the project**

Build Your PC is a very powerful website tool built to help people build their computer. The user is given two options. To build a computer rig based on their choice or to select a rig that is prepared by us and also recommended. Additional activity such as, reviews and comments are also provided which is not a compulsion. The user can select one of these at a time in the first page of the site.

• Build a Custom Rig

• Gaming Rig

• Domestic Rig

Upon choosing the “Build a Custom Rig” option, the user is directed to a page showing Motherboard picture. A friendly functionality is included which is, displaying motherboard details on hovering the mouse either over the image or beside it. This will provide the general details of the motherboard on the left side of the screen and certain tips that is assistive to the user in choosing the motherboard component. On clicking the build option, the user is directed to a page containing a table that holds all the motherboard components fetched from querying the database using php.

The selection of motherboard component is by input through radio button because the user can create one rig at a time and hence he can select only one item of the respective component. On clicking submit, the user is directed to a page showing Processor. Continuing the same way, Ram, Graphic card, Hard disk drive, Power supply unit, CPU cooler and cabinet component selection is done. After all the components are selected, the user is directed to a checkout page which presents the brand, model and the price of each items selected by the user. The user, after verifying the total price must click the Buy button to be directed to a page where he is requested to enter his Name and Email-Id for further services. This is a confirmation page, thus, after clicking the confirm button the user is directed to the conclusion page.

On selecting the Gaming Rigs options

• Entry Level

• Middle Level

• High Level

On selecting the Entry level option, the user is directed to a page where a rig that is already prepared by us is shown. The difference in the three levels is the rate of the rig. Entry level rigs are cheap compared to middle and high level.

On selecting the Domestic rig option, the user is directed to a page containing three rigs namely,

• Rig #1

• Rig #2

• Rig #3

These are the rigs prepared by us and the user interaction is the same as that of gaming rigs.

In both gaming and domestic rig section, there is a Proceed option which directs the user to the confirmation page.

All the above features have been implemented using HTML as front-end for interacting with user, CSS and Bootstrap for the purpose of styling, PHP routines for managing user interfaces, JavaScript to display the launch page and a database engine popularly known as MariaDB for storing and retrieving the user data and some SQL Shell commands to pre-process the given user input.

**1.2 Theory and Concepts**

**MariaDB Database Engine**

MariaDB is an in-process library that implements a self-contained, server less, zero-configuration, transactional SQL database engine. The code for MariaDB is in the public domain and is thus free for use for any purpose, commercial or private. MariaDB is the most widely deployed database in the world with more applications than we can count, including several high-profile projects.

A complete SQL database with multiple tables, indices, triggers, and views, is contained in a single disk file. The database file format is cross-platform - you can freely copy a database between 32-bit and 64-bit systems or between big-endian and little-endian architectures. These features make MariaDB a popular choice as an Application File Format.

**Hypertext Markup Language (HTML)**

It is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a web server or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects, such as interactive forms, may be embedded into the rendered page. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. HTML elements are delineated by tags, written using angle brackets. Tags such as <img/> and <input /> introduce content into the page directly. Others such as <p>...</p> surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

**Cascading Style Sheets (CSS)**

It is a [style sheet language](https://en.wikipedia.org/wiki/Style_sheet_language) used for describing the [presentation](https://en.wikipedia.org/wiki/Presentation_semantics) of a document written in a [markup language](https://en.wikipedia.org/wiki/Markup_language). Although most often used to set the visual style of [web pages](https://en.wikipedia.org/wiki/Web_page) and user interfaces written in [HTML](https://en.wikipedia.org/wiki/HTML) and [XHTML](https://en.wikipedia.org/wiki/XHTML), the language can be applied to any [XML](https://en.wikipedia.org/wiki/XML) document, including [plain XML](https://en.wikipedia.org/wiki/Plain_Old_XML), [SVG](https://en.wikipedia.org/wiki/Scalable_Vector_Graphics) and [XUL](https://en.wikipedia.org/wiki/XUL), and is applicable to rendering in [speech](https://en.wikipedia.org/wiki/Speech_synthesis), or on other media. Along with HTML and [JavaScript](https://en.wikipedia.org/wiki/JavaScript), CSS is a cornerstone technology used by most websites to create visually engaging webpages, user interfaces for [web applications](https://en.wikipedia.org/wiki/Web_applications), and user interfaces for many mobile applications.

CSS is designed primarily to enable the separation of presentation and content, including aspects such as the [layout](https://en.wikipedia.org/wiki/Page_layout), [colours](https://en.wikipedia.org/wiki/Color), and [fonts](https://en.wikipedia.org/wiki/Typeface). This separation can improve content [accessibility](https://en.wikipedia.org/wiki/Accessibility), provide more flexibility and control in the specification of presentation characteristics, enable multiple HTML pages to share formatting by specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content.

**JavaScript**

It is a dynamic computer programming language. It is lightweight and most commonly used as a part of web pages, whose implementations allow client-side script to interact with the user and make dynamic pages. It is an interpreted programming language with object-oriented capabilities.

Client-side JavaScript is the most common form of the language. The script should be included in or referenced by an HTML document for the code to be interpreted by the browser.

It means that a web page need not be a static HTML, but can include programs that interact with the user, control the browser, and dynamically create HTML content.

**Bootstrap**

**Bootstrap** is a free and open-source front-end web framework for designing websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. Unlike many web frameworks, it concerns itself with front-end development only.

Bootstrap is modular and consists of a series of Less stylesheets that implement the various components of the toolkit. These stylesheets are generally compiled into a bundle and included in web pages, but individual components can be included or removed. Bootstrap provides a number of configuration variables that control things such as color and padding of various components.

**jQuery**

**jQuery** is a cross-platform JavaScript library designed to simplify the client-side scripting of HTML.It is free, open-source software using the permissive MIT License.Web analysis indicates that it is the most widely deployed JavaScript library by a large margin.

jQuery's syntax is designed to make it easier to navigate a document, select DOM elements, create animations, handle events, and develop Ajax applications. jQuery also provides capabilities for developers to create plug-ins on top of the JavaScript library. This enables developers to create abstractions for low-level interaction and animation, advanced effects and high-level, theme able widgets. The modular approach to the jQuery library allows the creation of powerful dynamic web pages and Web applications.

jQuery, at its core, is a Document Object Model (DOM) manipulation library. The DOM is a tree-structure representation of all the elements of a Web page. jQuery simplifies the syntax for finding, selecting, and manipulating these DOM elements. For example, jQuery can be used for finding an element in the document with a certain property (e.g. all elements with an h1 tag), changing one or more of its attributes (e.g. color, visibility), or making it respond to an event (e.g. a mouse click).